

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

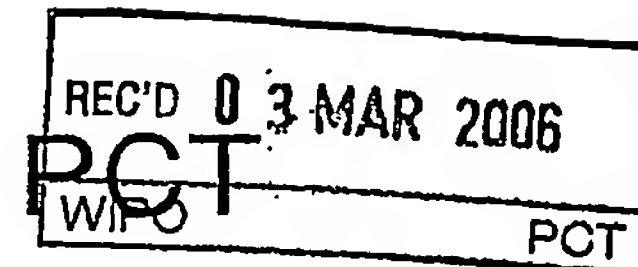
Applicant's or agent's file reference PHGB030191	FOR FURTHER ACTION	See item 4 below
International application No. PCT/IB2004/052104	International filing date (<i>day/month/year</i>) 15 October 2004 (15.10.2004)	Priority date (<i>day/month/year</i>) 18 October 2003 (18.10.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant KONINKLIJKE PHILIPS ELECTRONICS N.V.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 6 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 80%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44 <i>bis</i> .3(c) and 93 <i>bis</i> .1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44 <i>bis</i> .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 740 14 35	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Date of issuance of this report 18 April 2006 (18.04.2006)</td> </tr> <tr> <td style="padding: 2px;">Authorized officer Cecile Chatel</td> </tr> <tr> <td style="padding: 2px;">Telephone No. +41 22 338 70 60</td> </tr> </table>	Date of issuance of this report 18 April 2006 (18.04.2006)	Authorized officer Cecile Chatel	Telephone No. +41 22 338 70 60
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Telephone No. +41 22 338 70 60				

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2004/052104

International filing date (day/month/year)
15.10.2004

Priority date (day/month/year)
18.10.2003

International Patent Classification (IPC) or both national classification and IPC
G06F17/14, H04N7/26

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/052104

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/IB2004/052104

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Reference is made to the following documents:

- D1: WO 01/17270 A (SONY ELECTRONICS INC) 8 March 2001
- D2: WO 01/13648 A (PACKETVIDEO CORPORATION) 22 February 2001
- D3: US-A-5 371 611 (KATO ET AL) 6 December 1994
- D4: EP-A-0 661 886 (HEWLETT-PACKARD COMPANY) 5 July 1995
- D5: WO 00/01156 A (KONINKLIJKE PHILIPS ELECTRONICS N.V; PHILIPS AB) 6 January 2000

2. The subject matters of claims 1-7, 13-15, 20-26, 32-34, and 39 are not new (Article 33(2) PCT). The subject matters of claims 8-12, 16-19, 27-31, and 35-38 are new (Art. 33(2) PCT) but do not involve an inventive step (Art. 33(3) PCT).

Claim 1

2.1 **D1 (see abstract; page 3, line 3 to page 4, line 25; page 5, line 2 to page 6, line 16)** is considered to represent the closest prior art. D1 discloses a method with the following features of claim 1:

- a method of calculating an inverse transform (**D1: 2D-IDCT**) for transform coded data (**D1: 8x8 block of decoded MPEG video data**),
- said coded data being arranged in groups of coefficients (**D1: rows of the 8x8 block**),
- wherein at least one coefficient is selectively modified to control mismatch (**D1: DCT value at position $C_{(7,7)}$**),
- wherein the inverse transform is performed selectively so as to apply abbreviated processing to groups composed entirely of zero-valued coefficients (**D1: page 3,**

lines 7 to 11; page 3, lines 20 to 22; page 4, lines 13 to 17. The inverse transform for the original matrix involves applying a row/column-IDCT algorithm on the "modified original matrix"; the row/column-IDCT algorithm does not perform 1D-IDCT computation for a row ("abbreviated processing") if this row is all zeros (in the "modified original matrix")), and

- wherein, for the purpose of selecting whether abbreviated processing is to be applied, a data group is considered a zero-valued group if the only non-zero coefficient contained therein is a coefficient modified for mismatch control (**D1: page 4, lines 13 to 17: if the only non-zero coefficient in a row of the original matrix is a coefficient modified for mismatch control, i.e. at position $C_{(7,7)}$, this row is all zeros in the "modified original matrix" and, therefore, 1D-IDCT computation is not performed for this row).**

These are all the features of claim 1 in combination. Hence, the subject matter of independent claim 1 is not new (Art. 33(2) PCT).

Claims 2 to 7

2.2 The additional features of claims 2 to 7 are also disclosed in D1: see above. Hence, the subject matters of dependent claims 2 to 7 are not new (Art. 33(2) PCT) over D1.

Claims 8 to 10

2.3 In the method of D1, the second pass involves not performing 1D-IDCT computation for all-zeros columns of the matrix obtained as result of the first pass on the "modified original matrix" (D1: page 4, lines 17 to 21). To further reduce the number of performed operations, it would be obvious for a skilled person to use for the second pass pre-stored pruned 1D-IDCT routines taking into account which rows are all-zeros (see, for example, D2: page 10, lines 1 to 33; figures 3 and 4; D3: abstract; column 8, lines 19 to 58; figures 9 and 10). Therefore, the subject matter of claims 8 to 10 does not involve an inventive step (Art. 33(3) PCT).

Claims 11 and 12

- 2.4 It would be obvious to apply the teaching of D1 (use of "modified original matrix" and "dummy matrix" to avoid mismatch control to destroy the zero-pattern in the original matrix) in combination with known alternative IDCT algorithms as, for example, direct 2-D IDCT implementations identifying all-zeros 2-D blocks to reduce calculations. Hence, the subject matter of claims 11 and 12 does not involve an inventive step (Art. 33(3) PCT).

Claims 13 to 15

- 2.5 The additional features of claims 13 to 15 are also disclosed in D1 (see, in particular, page 5, lines 25 to 33). Hence, the subject matter of dependent claims 13 to 15 are not new (Art. 33(2) PCT) over D1.

Claims 16 to 19

- 2.6 It would be obvious to apply the teaching of D1 (use of "modified original matrix" and "dummy matrix" to avoid mismatch control destroying the zero-pattern in the original matrix) in combination with known alternative IDCT algorithms as, for example, those in which first the pattern of zeros (their number and positions) is classified and a pre-selected IDCT algorithm optimized for the detected zero pattern is used (see, for example, D4: abstract; page 4, line 45 to page 5, line 1; page 5, line 48 to page 6, line 40; D5: abstract; page 10, line 20 to page 12, line 27; figure 4). Hence, the subject matter of claims 16 to 19 does not involve an inventive step (Art. 33(3) PCT).

Claims 20 to 39

- 2.7 D1 discloses also a decode apparatus with means for performing the method (see abstract) and, thereby, also a record carrier with corresponding program instructions (see page 3, lines 17 to 20). Hence, the above objections raised against method claims 1 to 19 apply, mutatis mutandis, to corresponding apparatus claims 20 to 38: the subject matters of claims 20-26, 32-34, and 39 are not new (Art. 33(2) EPC), the subject matters of claims 27-31 and 35-38 do not involve an inventive step (Art. 33(3) EPC).